imaging an external appearance of the resin, as spread on the printed wiring board ;

determining a surface area of the spread and imaged resin; and

automatically adjusting the controlled amount of the resin based on the determined surface area of the spread and imaged resin.

6. (AS TWICE AMENDED HEREIN) A resin coating method for applying resin to a predetermined amount of resin region of on a printed wiring board, comprising the steps of:

imaging an external appearance of a resin drop after the resin drop has been extruded from a nozzle of a resin application device but before the resin drop contacts the printed wiring board; and

determining a diameter of the resin drop from the image thereof;

adjusting a distance between a tip of the nozzle and the printed wiring board based on the determined diameter of the resin drop obtained in the determining step.

14. (AS ONCE AMENDED HEREIN) A resin coating method as recited in claim 13, further comprising:

lowering the nozzle so as to attach a bottom part of the ball to the printed wiring board and raising the nozzle so as to separate same from the resin ball.

15. (AS ONCE AMENDED HEREIN) A resin coating method as recited in claim 14, wherein the imaging is performed by measuring the diameter of the resin ball.

REMARKS

In accordance with the foregoing, claim 1 is amended to improve form, in response to the alleged indefiniteness of claim 1 in item 4 of the Office Action.

No new matter is presented and, accordingly, it is requested that claim 1, as twice amended, be entered.

REQUEST FOR WITHDRAWAL OF FINAL STATUS OF PRESENT OFFICE ACTION AS PREMATURE (MPEP 706.07(c)-(e))--ON MULTIPLE GROUNDS

(1) ITEM 4: NEW GROUND OF REJECTION PRECLUDES FINAL STATUS

Item 4 of the Action raises an indefiniteness rejection of claims 1, 3 and 13-13 under 35 USC § 112, ¶2.

The "imaging" step, to which the § 112, ¶2 indefiniteness rejection is directed, is a recitation of claim 1 as originally filed. Hence, the § 112, ¶ 2 rejection is a new ground of rejection, not necessitated "by applicant's amendment of the claims...." (MPEP 706.07(a)), precluding the FINAL status of the present Action. Accordingly, the FINAL status of the present Action is premature and should be withdrawn. MPEP 706.07(c) and (d)

(Applicants presume that the rejections of claims 3 and 13-16 are based on the dependency of these claims from claim 1 and that no separate contention of indefiniteness (§ 112, ¶ 2) is raised as to those claims; confirmation is requested.)

Further, it is submitted that the foregoing amendment to claim 1 renders claim 1 free of any indefiniteness (§ 112 ¶ 2) and thus that the rejection should be withdrawn.

(2) FINAL ACTION IS NON-RESPONSIVE TO INTERVENING RESPONSE FILED JULY 15/NOVEMBER 5, 2002

Claim 2 was rejected in item 4 of the prior Action for an alleged lack of an enabling disclosure under 35 USC § 112, ¶ 1; specifically, the Action asserted:

> This step is not described in the specification in such a way as to enable one to make and/or use the invention. The specification does not mention "stretching". Clarification is requested.

(Office Action mailed April 15, 2002, Item 4 at page 2)

Item 5 of the prior Office Action moreover rejected claims 1 and 2 for anticipation under 35 USC § 102(b) by JP 6-120276; therein, the Examiner further addressed claim 2 as follows:

> With respect to claim 2, the claim recites "stretching atop a stage". As there is no in depth discussion as to what the step of "stretching" is, the Examiner has taken the position that the dispensed resin has been "stretched" over the circuit board.

(Office Action mailed April 15, 2002 in item 5 at page 3)

The intervening response expressly traversed the Examiner's contentions as to claim 2, pointing to precise literal support of the claim 2 recitations at page 18, lines 1-6 of the specification, which state "the resin 22 is stretched across the rotary plate 56...." (See prior response at pages 4-5 under the heading "Item 4: 35 USC § 112, ¶ 1 Rejection of Claim 2.") Further, in that prior response, the recitations of claim 2 (in which the word "stretching" was changed to --spreading--) were incorporated into claim 1 and claim 2 was canceled.

The present Action fails to acknowledge the traverse of the § 112, ¶ 1 rejection of claim 2 and, instead, treats applicants' intervening response as being "moot":

> Applicant's arguments filed 11/5/02 have been fully considered but they are moot in view of the rejection above.

(Examiner's "Response to Amendment", appearing in item 7 at page 5)

It is respectfully submitted that the Action is fatally defective for not addressing the arguments presented in the prior response to the dual 35 USC § 112, ¶ 1 and ¶ 2 rejections of claim 2 and the § 102(b) rejection of claim 2 and, instead, treating those arguments as "moot." The present Action clearly is not "complete as to all matters..." as is required under MPEP 707.07(b).

Accordingly, the FINAL status of the Action should be withdrawn, for the additional reasons of being incomplete and non-responsive.

(3) FINAL ACTION IS NON-RESPONSIVE TO THE INTERVENING AMENDMENT OF CLAIM 1

As addressed in the following discussion of ITEM 5 of the Action, the FINAL status further is premature since the Examiner has failed to address claims 1 and 3/1 so as to take into account the amendments to claim 1 of the intervening response and, instead, merely repeats the identical grounds of rejection of claims 1 and 3 as were asserted in the prior Action in items 5 and 6, respectively, of the present Action. For this further reason, the rejection is premature as made final.

ITEM 5: REJECTION OF CLAIM 1 UNDER 35 USC § 102(b) BY JP 6-120276

As noted above, this rejection of claim 1 (once amended) is identical to the rejection of original claim 1 presented in item 5 of the first Office Action. However, claim 1 (once amended) includes a (modified) recitation of claim 2, and thus claim 1 (once amended) includes the further step of "spreading said resin on said printed wiring board by a centrifugal force...."

Clearly, the grounds of rejection of original claim 1 are inadequate to support the rejection of claim 1 (once amended). Clearly, JP '276 has no teaching of "spreading said resin on said printed wiring board by a centrifical force...."

Accordingly, the § 102(b) rejection of claim 1 is defective and should be withdrawn.

SUBSTANTIVE TRAVERSE OF THE § 102(b) REJECTION OF ITEM 5

Underlying the basic distinction between the present invention, as defined in claim 1 as once amended, and the JP '276 reference is a phenomena which, it appears, the Examiner has failed to recognize or comprehend.

Particularly, the prior response argued the significant distinction that JP '276 deposits resin in a depression formed in a substrate surface and the deposited resin spreads only across the surface of the depression, to the surrounding sidewall, or step, i.e., the step defines a perimeter of the depressed area in which the resin is spread. JP '276 then measures the thickness of the resin in the depressed region to determine the amount of resin which has been applied.

Applicants then asserted:

> Contrary to the reference, the present invention does not restrict the area of the resin on the surface of the printed circuit board. Associated therewith, no stepped structure is provided so as to define a depressed part, in the case of the present invention.
>
> Thus, in the present invention, the resin is spread by centrifugal force by rotating the substrate so that the resin is spread over the surface of the printed circuit board in a uniform thickness. The method of the JP '276 reference is unrelated to the process of applying a resin in accordance with the invention as claimed herein.

(Remarks at page 6)

The specification elaborates on this technique of the invention at page 18, lines 24-35:

> During a dry run, depending on the state of rotation of the rotary plate 56, centrifugal force causes the extruded resin 22 to elongate across the surface of the rotary plate 56 in the step S104. The spread resin 22 develops into a thin disc-like shape. In this case, the thickness of the resin 22 remains virtually unchanged and uniform even if there is a change in the amount of resin used in the coating. Accordingly, by noting changes in the surface area of the resin 22 it is possible to note any changes in the coating amount of resin 22 as well.

The specification further explains a correlation between the surface area data and the coated amount (page 19, lines 13-23):

> Based on the surface area data obtained as described above, a correlation is found between surface area and coating amount by referring to a table of such correlations. Any difference between the predetermined programmed coating amount and the actual coating amount as obtained from the surface area data is sent to the control instrument 42, and the control instrument 42 used to reset the open-and-close cycle of the electromagnetic valve 42 in order to reacquire the correct, that is, the predetermined coating amount in a step S110.

JP '276 has no teaching of performing an automatic adjustment of the controlled amount of resin based on the "determined surface area of the resin...." To the contrary, JP '276 measures the thickness of the layer, as confined within the stepped depression on the substrate surface--a technique altogether contrary to that of the present invention.

More particularly, JP 6-120276, discloses a technology by which the thickness of a film is measured after application of the film but before drying of the film--and the applied amount of the film is controlled, based on the measured thickness. Furthermore, the JP '276 reference monitors, or measures, the amount of resin applied by measuring the thickness of the resin layer, after the application of the resin, by detecting a change of focal distance. This approach of JP '276 is effective only for the case on which the area in which the resin is applied is determined in advance. The approach of JP '276 thus is useless in relation to the present invention, in which the area in which the resin is applied is not limited.

Contrary to the reference, the present invention, after the resin application step, spreads the resin by centrifugal force (which maintains a uniform thickness of the resin layer as spread)

and measures the area of the resin as affording a measurement of the amount of resin. Thus, the process of the present invention is patentably distinct over the '276 reference.

Claim 1 as now twice amended is clarified by now reciting:

> 1. (TWICE AMENDED) A resin coating method for applying resin to a predetermined amount of resin region of on a printed wiring board, comprising the steps of:
> applying a controlled amount of resin on a printed wiring board by extruding the resin from a resin application device;
> spreading said resin on said printed wiring board by centrifugal force;
> imaging an external appearance of the resin, as spread on the printed wiring board;
> determining a surface area of the spread and imaged resin; and
> automatically adjusting the controlled amount of the resin based on the determined surface area of the spread and imaged resin.

(Underlined portions represent pertinent, newly introduced limitations in claim 1 (twice amended) as presented herein.)

Clearly, JP '276 has no teaching of spreading the resin by centrifical force, imaging an external appearance of the resin, as so spread, and determining a surface area of the spread and imaged resin--and, finally, of automatically adjusting the controlled amount of the resin based on the determined surface area of the spread and imaged resin.

ITEM 6: REJECTION OF CLAIM 3/1 FOR OBVIOUSNESS UNDER 35 USC § 103(a) OVER JP '276

The rejection is identical to that at page 4, the first paragraph, of the prior Office Action.

The foregoing distinctions of claim 1 over JP '276 are inherited by claim 3/1, which distinguishes over that same reference for at least the same reasons.

Furthermore, the Examiner has offered no explanation as to why applicant's previously argued distinctions in support of patentability of claim 3/1 are not sufficient to overcome the rejection of same and the action, accordingly, is defective since incomplete. (MPEP 707.07(f))

Applicants incorporate the previous argued distinctions herein by reference and

supplement same with the following, further contentions.

Applicants respectfully, further traverse the Examiner's argument that a monitoring technique using fluorescence is common to those skilled in the art. Applicants submit that such a technique is not common in the technical field of the present invention, of dispensing the underfill for mounting an integrated circuit chip.

Should the Examiner persist in relying on alleged "common knowledge in the art" or factors allegedly "well known" to those of skill in the art, as asserted in item 6 of the Action, then the Examiner is requested to state the facts on which that knowledge is based and support same by an affidavit of the Examiner in accordance with MPEP 2144.03.

Absent such a supporting affidavit, it is submitted that the rejection of claim 3 is without basis and should be withdrawn.

ITEM AT END OF PAGE 3: REJECTION OF CLAIMS 6 AND 7 FOR OBVIOUSNESS (35 USC § 103(a) OVER JP '276 IN COMBINATION WITH NAKASU ET AL. ('356)

The Remarks traversing the rejection of claims 6 and 7, set forth in the prior response at page 7, item 6, are incorporated herein by reference.

In the foregoing, claim 6 has been amended to recite that, in conjunction with the "imaging" step, there is a further step of: "determining a diameter of the resin drop from the image thereof--and whereby the final step of "adjusting a distance..." between a tip of the nozzle and the wiring board is based on "the determined diameter of the resin drop obtained in the determining step." By using fluorescence, it is possible to measure the area of a transparent resin, which does not cause optical reflection.

The '276 reference is silent about the feature of measuring the dripping resin. The reference teaches measurement conducted after application of the resin. In addition, the sensor (25) of the '356 reference detects whether or not dripping has occurred. This is not a device for "imaging...a resin drop" as in claim 6 or "imaging a residual amount of the resin on an extrusion nozzle..." as in claim 7.

No such disclosure is provided in either of the two references, taken singly or in any proper combination. Thus, even if these two references were combinable--assuming *prima facie* obviousness of such a combination can be established, which it has not been-- the subject matter as set forth in claims 6 and 7 is not rendered obvious (§ 103) in view thereof.

ITEM AT BOTTOM OF PAGE 4: REJECTION OF CLAIMS 13-24 FOR OBVIOUSNESS (§ 103(a)) OVER JP '276 IN COMBINATION WITH NAKASU AND FURTHER IN COMBINATION WITH EITHER SMITH ET AL. (USP 5,377,961) OR YOST ET AL. (5,855,323)

The rejection is respectfully traversed. Each of these rejected claims depends directly, or indirectly, from independent claim 1 and thus inherits the patentable distinctions thereof over the references of record, as set forth above.

It is noted that the action concedes that JP '276 and Nakasu does not teach "forming a solder ball at the tip of a nozzle prior to being detached to a substrate." Accordingly, Smith and Yost are newly cited in the Action, both purportedly for teaching: "solder ball formation prior to application to a substrate."

In fact, Nakasu discloses a nozzle 8 through which fused solder in a cavity 6 is discharged through an opening 7 as a solder ball to produce a solder bump 29 on a chip 26--the same general technology as in Smith and Yost.

JP '276, on the other hand, has no relationship to measuring a dripping resin or forming solder bumps--and Nakasu, along with Smith and Yost and JP '276, as well, are unrelated to the functions of spreading a resin on a printed wiring board by centrifical force and determining a surface area of the spread and imaged resin, as recited in claim 1.

The Action advances no bases to explain any *prima facie* obviousness of the combination of the four references and, it is submitted, no such basis exists. Clearly, the solder ball formation field of technology of the three references is altogether different from the resin droplet formation from a resin discharging nozzle of the JP '276 reference.

Only claims 13 and 14, 17 and 18, and 21 and 22, out of the group of rejected claims 13-24, relate to solder ball formation. In other words, the Examiner's grounds of rejection asserted in this item have no bearing on the recitations of claims 15 and 16, 19 and 20, and 23 and 24--and which accordingly should be deemed allowable at this juncture.

Neither Smith nor Yost et al. teach "applying the resin by extruding same from a nozzle..." as recited in each of claims 13/1, 17/6 and 21/7. Since the remaining dependent claims 14, 18, and 22 depend directly or indirectly from claims 13/1, 17/6 and 21/7, respectively, each inherits this same distinguishing recitation.

Particularly, Smith teaches varying the direction of an electric current applied to a solder stream as it flows through a conduit, adjacent which a magnetic coil is disposed and which exerts a magnetic force on the solder such that, when a drop of solder is formed at the nozzle, the current is reversed and the magnetic field is applied whereby "an extremely small drop of solder is `snapped off' of the solder stream." (Smith USP '961, abstract) There is no suggestion is this reference that the resin forms a ball "attached at a top part thereof to the nozzle." Furthermore, the "snapped off" technique is altogether unrelated to the ball separation function recitations of the dependent claims 14/13, 18/17 and 21/21.

Yost et al. uses a technique in which a rapid withdrawal of piston 12 creates an "instability" between the steps shown in Figs. 3B and 3C, whereby balls 32 drop from the grid 28 unto a desired surface intended to receive same. This is altogether different from the procedure of the present invention.

It is respectfully submitted that the divergence of the respective teachings of Nakasu, Smith and Yost et al. from each other and from the principle JP '276 reference, speaks loudly and clearly to the absence of any *prima facie* obviousness of any combination of these references.

The techniques addressed by claims 13-24 render it possible to apply resin material on a printed circuit board with precision and the recitations thereof provide further patentable distinctions over the references relied upon, taken singly or in any proper combination.

CONCLUSION

It is respectfully submitted that the rejection is defective and incomplete as well as being prematurely made FINAL and, for those procedural deficiencies, the FINAL status of the Action should be withdrawn.

Moreover, applicants have endeavored to demonstrate clearly to the Examiner, in the foregoing, that the claims herein patentably distinguish over the art of record and, further, respectfully submit that the application is in condition for allowance, which action is earnestly solicited. Should the Examiner be disposed otherwise than to allowance of the application, it is requested that the Examiner contact the undersigned for scheduling a conference to discuss the rejection and the patentably distinct features of the invention.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date: April 9, 2003

By: _____
H. J. Staas
Registration No. 22,010

700 Eleventh Street, NW, Suite 500
Washington, D.C. 20001
(202) 434-1500

CERTIFICATE UNDER 37 CFR 1.8(a)

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231

on April 9, 2003

STAAS & HALSEY

By: _____

Date: 4-9-03

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

Please AMEND the paragraph beginning at page 17, line 12, as follows:

In order to perform the resin coating method according to the first embodiment of the present invention, the resin coating apparatus 10 described above additionally and further has a rotary plate (stage) 56 driven by a motor 54, a camera (imaging means) 58 for taking a photograph (i.e., an image) of the rotary plate 56[,] ; and a monitor 60 for looking at (i.e., examining) the image [from] obtained by the camera 58. The monitor 60 is equipped with an image analyzer [sending a control signal 64 to the control instrument 42 based on the image analysis data from a calculator that processes] which produces digitized information from each picture element of the image and which is processed by calculator 62 which sends a control signal 64 to the control instrument 42.

Please AMEND the paragraph beginning at page 18, line 7, as follows:

In other words, when for a variety of reasons it is deemed necessary to check for variation in the coating amount of the resin and to adjust the coating amount accordingly, the resin coating apparatus 10 is moved and the syringe 16 positioned at the rotary plate 56 in a step S100. Then the resin 22 is extruded under programmed actual coating conditions onto the rotary plate 56 in a so-called dry run step S102. The dry run is carried out as appropriate whenever for any reason a change occurs in the amount of resin coating the printed wiring boards during a production line run. Additionally, the dry run may also be carried out on a regular and periodic basis for the purpose of checking and adjusting the amount of resin used in the coating, for example a dry run once every ten printed wiring board coatings.

Please AMEND the paragraph spanning pages 18-19, as follows:

As described above, the external appearance of the resin 22 is photographed with the camera 58 in the step S106 and the resulting image analyzed in the step S108. The image so acquired is used to determine the surface [are] area of the resin 22 spread across the surface of the rotary plate 56. Ordinarily, when the measurement object is irregular, it is necessary to scan the entire image in order to obtain an approximation of its surface area. However,

according to the present embodiment, the surface area can be obtained using just the diameter of the substantially circular shape formed by the spreading resin 22, thus making image analysis easy and quick.

Please AMEND the paragraph beginning at page 19, line 13, as follows:

Based on the surface area data obtained as described above, a correlation is found between surface area and coating amount by referring to a table of such correlations. Any difference between the predetermined programmed coating amount and the actual coating amount as obtained from the surface area data is sent to the control instrument 42, and the control instrument 42 used to reset the open-and-close cycle of the electromagnetic valve [42] 40 in order to reacquire, or re-establish, the correct, that is, the predetermined coating amount in a step S110.

Please AMEND the paragraph beginning at page 25, line 23, as follows:

According to the resin coating method according to the third embodiment of the present invention, when the height at which the tip of the nozzle 16b is positioned changes, either because, for example, the syringe 16 containing the resin 22 used for coating becomes empty and is replaced with a new syringe 16 or for some other reason, the tip of the nozzle 16b is maintained at a predetermined height with respect to a reference surface when installed on the resin coating apparatus 90. Thereafter the syringe 16, which is positioned at a predetermined height [about] above the reference surface, is then lowered a predetermined amount by the control program. As a result, the distance between the tip of the nozzle 16b and the printed wiring board 46 is maintained at a predetermined value even after the syringe has been replaced, so no change in the amount of resin 22 used in coating the printed wiring board 46 occurs.

Please AMEND the paragraph spanning pages 26-27, as follows:

Before the nozzle 16b is lowered to a resin coating height H2 at a predetermined distance between the nozzle 16b and the printed wiring board 46, the resin 22 is extruded from the nozzle 16b at an arbitrary height H1 (Fig. 10A). At this time the extruded resin 22 forms substantially a ball shape, with a top part of the ball attached to the tip of the nozzle 16b in a

step S400.

Please AMEND the paragraph beginning at page 27, line 3, as follows:

The ball of resin 22 is then photographed by the camera 58 and, through image analysis, a diameter D of the ball of resin 22 is obtained in a step S402 by calculator 62.

Please AMEND the paragraph beginning at page 27, line 7, as follows:

A control signal 101 transmitted from the calculator 62 to the controller 14 based on the diameter data D obtained in the step S402, causing [causes] the syringe 16 to be lowered to the predetermined resin coating height H2 in a step S404, a height that corresponds to the diameter D. A bottom part of the resin 22 then contacts the printed wiring board, after which the syringe 16 is then raised, causing the resin 22 to separate from the nozzle 16b and spread across the printed wiring board 46, coating same, in a step S406 (Fig. 10B).

Please AMEND the paragraph spanning pages 28-29, as follows:

As shown in the diagram, the camera 58 is positioned at the tip of the nozzle 16b of the syringe 16 from which the resin 22 is extruded. The control device 112 measures the amount of residual resin attached to end 16b of the nozzle 16 through image analysis, compares the measured amount to a predetermined value, and transmits a signal to the washing unit to wash the nozzle end 16b if the measured amount exceeds the predetermined value. The washing unit is equipped with a washing nozzle 114 that sprays the nozzle end 16b with washing fluid.

Please AMEND the paragraph beginning at page 29, line 16, as follows:

The amount of resin 22 remaining on the periphery of the end 16b of the nozzle 16 is quantified by the monitor 60 and the control device 112 in a step S502.

Please AMEND the paragraph beginning at page 29, line 19, as follows:

The control device 112 determines whether the amount of resin 22 attached to the nozzle 16b exceeds a predetermined value S504 and, if not, continues surveillance of the

nozzle 16b by the camera 58. If, however, the amount of resin adhering to the nozzle exceeds the predetermined value, then the control device 112 transmits a wash signal 113 to the washing unit, so that the washing nozzle 114 sprays the nozzle end 16b with washing fluid to remove resin 22 attached to the nozzle 16b.

IN THE CLAIMS:

Please AMEND the following claims:

1. (TWICE AMENDED) A resin coating method for applying resin to a predetermined amount of resin region of on a printed wiring board, comprising the steps of:

applying [a] a controlled amount of resin on a printed wiring board by extruding the resin from a resin application device;

spreading said resin on said printed wiring board by [a] centrifugal force; [and]

imaging an external appearance of the resin, as spread on the printed wiring board [extruded from a resin application device];

determining a surface area of the spread and imaged resin; and

automatically adjusting [an] the controlled amount of the resin [extruded from the resin application device] based on the [external appearance a] determined surface area of the spread and imaged resin [obtained in the imaging step].

3. (AS ONCE AMENDED) the resin coating method as claimed in claim 1, wherein the imaging step comprises:

exposing the resin to light of a predetermined wavelength so as to fluoresce the resin; and

separating fluorescent light so generated from light of other wavelengths to obtain a fluorescent image of the resin.

6. (TWICE AMENDED) A resin coating method for applying resin to a predetermined amount of resin region of on a printed wiring board, comprising the steps of:

imaging an external appearance of a resin drop after the resin drop has been extruded from a nozzle of a resin application device but before the resin drop contacts the printed wiring board; and

determining a diameter of the resin drop from the image thereof;

adjusting a distance between a tip of the nozzle and the printed wiring board based on the [external appearance] determined diameter of the resin drop obtained in the [imaging] determining step.

7. (AS ONCE AMENDED) A resin coating method for applying a predetermined amount of resin to a predetermined region of on a printed wiring board, comprising the steps of:

imaging a residual amount of the resin on an extrusion nozzle of a resin application device from which the resin is expelled; and

washing the nozzle when the residual amount exceeds a predetermined amount.

13. (AS NEW) A resin coating method as recited in claim 1, further comprising:

applying the resin by extruding same from a nozzle of the resin application device, the extruded resin being in the form of a ball attached at a top part thereof to the nozzle and displaced above and separated from the printed wiring board.

14. (ONCE AMENDED) A resin coating method as recited in claim 13, further comprising:

lowering the nozzle so as to attach a bottom part of the ball to the printed wiring board and raising the nozzle so as to separate same from the resin ball.

15. (ONCE AMENDED) A resin coating method as recited in claim 14, wherein the imaging is performed by measuring the diameter of the resin ball.

16. (AS NEW) A resin coating method as recited in claim 14, further comprising:

spreading the resin ball to a uniform thickness layer; and

determining the amount of the applied resin in accordance with the measured diameter and a correlation table relating to the latter to an amount.

17. (AS NEW) A resin coating method as recited in claim 6, further comprising:

applying the resin by extruding same from a nozzle of the resin application device, the extruded resin being in the form of a ball attached at a top part thereof to the nozzle and displaced above and separated from the printed wiring board.

18. (AS NEW) A resin coating method as recited in claim 17, further comprising:

lowering the nozzle so as to attach a bottom part of the ball to the printed wiring board and raising the nozzle so as to separate same from the ball.

19. (AS NEW) A resin coating method as recited in claim 18, wherein the imaging is performed by measuring the diameter of the resin.

20. (AS NEW) A resin coating method as recited in claim 18, further comprising:

spreading the resin ball to a uniform thickness layer; and

determining the amount of the applied resin in accordance with the measured diameter and a correlation table relating to the latter to an amount.

21. (AS NEW) A resin coating method as recited in claim 7, further comprising:

applying the resin by extruding same from the nozzle of the resin application device, the extruded resin being in the form of a ball attached at a top part thereof to the nozzle and displaced above and separated from the printed wiring board.

22. (AS NEW) A resin coating method as recited in claim 21, further comprising:

lowering the nozzle so as to attach a bottom part of the ball to the printed wiring board and raising the nozzle so as to separate same from the ball.

23. (AS NEW) A resin coating method as recited in claim 22, wherein the imaging is performed by measuring the diameter of the resin.

24. (AS NEW) A resin coating method as recited in claim 22, further comprising:

spreading the resin ball to a uniform thickness layer; and

determining the amount of the applied resin in accordance with the measured diameter and a correlation table relating to the latter to an amount.